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venting the passage of any water except when the lamp is lighted and at its maximum intensity; a device for automatically lighting the lamp when the current is turned on; a simple method of removing and cleaning the quartz tube; and a closed reserve tank, holding, say, 200 gallons, placed upon an upper deck in order to supply the system when the water is shut off. With an apparatus as specified above, all that it would be necessary for the engineer to do would be to turn on the current and furnish the water; after that the apparatus would operate automatically.

With any of the above approved methods of water purification it is imperative that the equipment be of a sufficient size to meet the maximum load that may be put upon it.

Outside of the above three methods none is known to us which will, under all circumstances, produce a water meeting the Government requirements.

PLAGUE-PREVENTION WORK.

CALIFORNIA.

The following report of plague-prevention work in California for the week ended September 16, 1916, was received from Senior Surg. Pierce of the United States Public Health Service, in charge of the work:

FEDERAL AND COUNTY INSPECTION SERVICE.

(For the enforcement of the law of June 7, 1913.)

Counties.	Number inspected.	Number re-inspected.	Acres inspected.	Acres re-inspected.	Acres treated.		Holes treated.
					Waste balls.	Grain.	
Alameda.....		103		32, 118	10	2, 924	150
Contra Costa.....	5	65	4, 320	31, 499		11, 707	
Stanislaus.....	84	75	34, 360	40, 806	920	12, 342	
Santa Cruz.....		35		5, 044		3, 037	
Merced.....	32	18	21, 063	9, 420		6, 210	
Monterey ¹	32	16	30, 655	8, 855		8, 885	6, 720
San Benito.....	45	32	36, 657	23, 481	400	33, 010	1, 000
Santa Clara ²	36	2	12, 980	700		755	
San Mateo.....	13		3, 938				
Total.....	247	346	143, 973	151, 923	1, 330	78, 900	7, 870

¹ Nine hundred acres treated with hose and funnel.

² Sixteen miles railroad rights-of-way inspected and treated with grain.

RATS COLLECTED AND EXAMINED FOR PLAGUE.

Cities.	Collected.	Examined.	Infected.
Oakland.....	20	20	None.
Richmond.....	24	24	None.
Antioch.....	64	64	None.
Total.....	108	108	None.

RECORD OF PLAGUE INFECTION.

Places in California.	Date of last case of human plague.	Date of last case of rat plague.	Date of last case of squirrel plague.	Total number rodents found infected since May, 1907.
Cities:				
San Francisco.....	Jan. 30, 1908	Oct. 23, 1908	(1)	398 rats.
Oakland.....	Aug. 9, 1911	Dec. 1, 1908	(1)	126 rats.
Berkeley.....	Aug. 28, 1907	(1)	(1)	None.
Los Angeles.....	Aug. 11, 1908	(1)	Aug. 21, 1908	1 squirrel.
Counties:				
Alameda (exclusive of Oakland and Berkeley).	Sept. 21, 1909	Oct. 17, 1909	June 23, 1916	293 squirrels, 1 wood rat.
Contra Costa.....	July 13, 1915	(1)	June 25, 1916	1,629 squirrels.
Fresno.....	(1)	(1)	Oct. 27, 1911	1 squirrel.
Merced.....	(1)	(1)	May 12, 1916	7 squirrels.
Monterey.....	(1)	(1)	May 27, 1916	34 squirrels.
San Benito.....	June 4, 1913	(1)	July 1, 1916	72 squirrels.
San Joaquin.....	Sept. 18, 1911	(1)	Aug. 26, 1911	18 squirrels.
Santa Clara.....	Aug. 31, 1910	(1)	June 21, 1916	32 squirrels.
San Luis Obispo.....	(1)	(1)	Jan. 29, 1910	1 squirrel.
Santa Cruz.....	(1)	(1)	May 30, 1916	5 squirrels.
Stanislaus.....	(1)	(1)	June 2, 1911	18 squirrels.
San Mateo.....	(1)	(1)	June 21, 1916	1 squirrel.

1 None.

The work is being carried on in the following named counties: Alameda, Contra Costa, Stanislaus, Monterey, San Benito, Santa Cruz, Merced, Santa Clara, and San Mateo.

OPERATIONS ON THE WATER FRONT.

Number of vessels inspected for rat guards..	16
Number of reinspections made on vessels..	3
Rats trapped on wharves and water front..	39
Rats trapped on vessels.....	18
Number of traps set on wharves and water front.....	267
Number of traps set on vessels.....	106
Number of vessels trapped on.....	16
Poisons placed on water front (pieces).....	3,600

OPERATIONS ON THE WATER FRONT—continued.

Bait used on water front and vessels. Bacon (pounds).....	6
Amount of bread used in poisoning water front (loaves).....	12
Number of pounds of poison used on water front.....	4
Poisons placed within the Panama-Pacific International Exposition grounds (pieces)	36,000

The following is a record of municipal work performed under the supervision of the United States Public Health Service.

COOPERATIVE MUNICIPAL WORK.

Number of premises inspected.....	765
Number of nuisances abated.....	90
Number of rats trapped.....	57
Number of rats examined.....	35
Number of poisons placed.....	56,400
Number of garbage cans stamped approved.	800
Rats identified:	
Mus norvegicus, 23.	Mus rattus, 10.
Mus alexandrinus, 24.	

WORK DONE ON OLD BUILDINGS.

Wooden floors removed.....	10
Number of yards and passageways, plank-ing removed.....	2
Cubic feet new foundation walls installed..	9,430
Concrete floors installed (square feet, 8,000).	8
Number of basements concreted (square feet, 17,925).....	26
Yards and passageways, etc., concreted (square feet, 6,395).....	16
Total area concrete laid (square feet).....	32,320
Number of floors rat-proofed with wire cloth (square feet, 1,125).....	2
Buildings razed.....	4

LOUISIANA—NEW ORLEANS—PLAGUE ERADICATION.

The following report of plague-eradication work at New Orleans for the week ended September 23, 1916, was received from Passed Asst. Surg. Simpson, of the United States Public Health Service, in charge of the work:

OUTGOING QUARANTINE.

Number of vessels fumigated with cyanide gas.....	15
Pounds of cyanide used in cyanide gas fumigation.....	1,128
Pints of sulphuric acid used in cyanide gas fumigation.....	1,688
Clean bills of health issued.....	33
Foul bills of health issued.....	2

FIELD OPERATIONS.

Number of rodents trapped.....	10,221
Number of premises inspected.....	7,455
Notices served.....	551
Number of garbage cans installed.....	22

BUILDINGS RAT PROOFED.

By elevation.....	139
By marginal concrete wall.....	183
By concrete floor and wall.....	142
By minor repairs.....	256
Total buildings rat proofed.....	720
Square yards of concrete laid.....	5,319
Number of premises, planking, and shed flooring removed.....	92
Number of buildings demolished.....	93
Total buildings rat proofed to date (abated).....	127,163

LABORATORY OPERATIONS.

Rodents received by species:	
<i>Mus rattus</i>	260
<i>Mus norvegicus</i>	700
<i>Mus alexandrinus</i>	182

LABORATORY OPERATIONS—continued.

Rodents received by species—Continued.

<i>Mus musculus</i>	8,833
Wood rats.....	116
Muskrats.....	3
Putrid.....	186
Total rodents received at laboratory.....	10,283
Rodents examined.....	1,767
Number of rats suspected of plague ¹	29
Plague rats confirmed.....	1

PLAGUE RAT.

Case No. 335.
 Found at Florida Walk and Music Dump.
 Captured August 21, 1916.
 Diagnosis confirmed September 18, 1916.

PLAGUE STATUS TO SEPTEMBER 23, 1916.

Total number of rodents captured to September 23.....	853,417
Total number of rodents examined to September 23.....	383,776
Total cases of rodent plague to September 23, by species:	
<i>Mus musculus</i>	6
<i>Mus rattus</i>	20
<i>Mus alexandrinus</i>	16
<i>Mus norvegicus</i>	293
Total rodent cases to September 23, 1916.....	335

WASHINGTON—SEATTLE—PLAGUE ERADICATION.

The following report of plague-eradication work at Seattle for the week ended September 16, 1916, was received from Passed Asst. Surg. Krulish, in charge of the work:

RAT PROOFING.

New buildings inspected.....	18
New buildings reinspected.....	36
Basements concreted, new buildings (square feet, 5,250).....	7
Floors concreted, new buildings (square feet, 14,175).....	9
Yards, etc., concreted, new buildings (square feet, 1,450).....	5
Sidewalks concreted (square feet).....	12,475
Total concrete laid, new structures (square feet).....	33,350
New buildings elevated.....	4
New premises rat proofed, concrete.....	16
Old buildings inspected.....	5
Premises rat proofed, concrete, old buildings.....	3
Floors concreted, old buildings (square feet, 12,250).....	3
Wooden floors removed, old buildings.....	5
Buildings razed.....	2

LABORATORY AND RODENT OPERATIONS.

Dead rodents received.....	19
Rodents trapped and killed.....	266
Rodents recovered after fumigation.....	24
Total.....	309
Rodents examined for plague infection.....	206
Rodents proven plague infected.....	None.
Poison distributed (pounds).....	21
Bodies examined for plague infection.....	6
Bodies proven plague infected.....	None.
CLASSIFICATION OF RODENTS.	
<i>Mus rattus</i>	37
<i>Mus alexandrinus</i>	52
<i>Mus norvegicus</i>	162
<i>Mus musculus</i>	58
WATER FRONT.	
Vessels inspected and histories recorded.....	16
Vessels fumigated.....	3
Sulphur used, pounds.....	4,700

¹ Indicates the number of rodents, the tissues of which were inoculated into guinea pigs. Most of them showed on necropsy only evidence of recent inflammatory process, practically none presented gross lesions characteristic of plague infection.

WATER FRONT—continued.

New rat guards installed.....	7
Defective rat guards repaired.....	28
Fumigation certificates issued.....	3
Port sanitary statements issued.....	37
The usual day and night patrol was maintained to enforce rat guarding and fending.	

MISCELLANEOUS WORK.

Letters sent in re rat complaints.....	4
Rat proofing notices sent contractors, new buildings.....	11
Railway coach disinfected.....	1

RODENTS EXAMINED IN EVERETT.

Mus norvegicus trapped.....	69
Mus norvegicus found dead.....	2
Mus musculus trapped.....	3
Total.....	74

RODENTS EXAMINED IN EVERETT—continued.

Rodents examined for plague infection.....	70
Rodents proved plague infected.....	0

RAT-PROOFING OPERATIONS IN EVERETT.

New buildings inspected.....	2
New buildings reinspected.....	8
New buildings, concrete foundations.....	1
New buildings elevated.....	2
New buildings, basements concreted (square feet, 1,500).....	1
New buildings, floors concreted (square feet, 812).....	1
Total concrete laid (square feet).....	2,312

RODENTS EXAMINED IN TACOMA.

Mus norvegicus trapped.....	118
Rodents examined for plague infection.....	70
Rodents proven plague infected.....	0

HAWAII—PLAGUE PREVENTION.

The following reports of plague-prevention work in Hawaii were received from Surg. Trotter of the United States Public Health Service:

Honolulu.

WEEK ENDED SEPT. 16, 1916.

Total rats and mongoose taken.....	296	Average number of traps set daily.....	984
Rats trapped.....	295	Cost per rat destroyed.....	26 cents.
Mongoose trapped.....	1	Last case rat plague Aiea, 9 miles from Honolulu, Apr. 12, 1910.	
Examined microscopically.....	237	Last case human plague, Honolulu, July 12, 1910.	
Examined macroscopically.....	59	Last case rat plague, Paauhau, Hawaii, Jan. 18, 1916.	
Showing plague infection.....	None.	Last case human plague, Paauhau Plantation, Hawaii, Dec. 16, 1915.	
Classification of rats trapped:			
Mus alexandrinus.....	121		
Mus musculus.....	118		
Mus norvegicus.....	45		
Mus rattus.....	11		

Hilo.

WEEK ENDED SEPT. 2, 1916.

Number of rats and mongoose taken.....	2,461	Classification of rats trapped and found dead:	
Number of rats trapped.....	2,402	Mus norvegicus.....	503
Number of mongoose taken.....	59	Mus alexandrinus.....	341
Number of rats and mongoose examined macroscopically.....	2,461	Mus rattus.....	532
Number of rats and mongoose plague infected.....	None.	Mus musculus.....	1,026

WEEK ENDED SEPT. 9, 1916.

Number of rats and mongoose received at laboratory.....	2,467	Classification of rats trapped and found dead:	
Number of rats trapped.....	2,416	Mus norvegicus.....	500
Number of rats found dead.....	9	Mus alexandrinus.....	333
Number of mongoose taken.....	42	Mus rattus.....	621
Number of rats and mongoose examined macroscopically.....	2,467	Mus musculus.....	971
Number of rats and mongoose plague infected.....	None.	Last case of rat plague, Paauhau Sugar Co., Jan. 18, 1916.	
		Last case of human plague, Paauhau Sugar Co., Dec. 16, 1915.	